HYDROLOGICAL SUMMARY FOR GREAT BRITAIN
MARCH 1990

Data for this review have been provided principally by the regional divisions of the National Rivers Authority in England and Wales, the River Purification Boards in Scotland and by the Meteorological Office. The recent areal rainfall figures are derived from a restricted network of raingauges and a significant proportion of the river flow data is of a provisional nature.

For a fuller appreciation of the water resources implications, this hydrological review should be considered alongside assessments of the current reservoir storage and water demand situations in each region.

SUMMARY

March was a warm, dry month throughout most of Great Britain. Generally, river flows and groundwater levels declined steeply following the remarkable hydrological conditions experienced in February and significant soil moisture deficits developed in most lowland regions. On a regional basis, monthly runoff totals and groundwater levels in March were within the normal range for the spring. However, spatial variations were considerable and the water resources situation is very much healthier in the west than in parts of the eastern lowlands where rain-shadow influences have been very persistent. As a consequence, runoff and recharge rates - which are modest even in a typical year - have been below average in a few areas for the second successive winter and the resources outlook remains fragile.

RAINFALL

March was yet another month dominated by south-westerly winds. Unlike the mid-December to mid-February period however, the great majority of low pressure systems followed a northerly track remote from southern Britain. Rainfall was abundant only in Scotland where some extraordinary precipitation totals have been registered throughout the winter period. Much of eastern and southern Britain recorded less than half the average March rainfall and a few localities, for instance in east Kent, registered as little as 2 mm over the entire month.

For England and Wales as a whole provisional data indicate that March was the driest month for four years and had the fifth lowest March rainfall total this century. In many parts of lowland Britain a significant dry spell had extended to eight weeks by the second week of April.

The recent dry episode served to only partly counterbalance the exceptionally wet interlude which preceded it. Winter half-year rainfall totals are very close to, or above, average for all regions. The six-month precipitation total for Great Britain is 20 per cent above the 1941-70 mean and might be expected, on average, about once every ten years. Such frequency estimates - especially when based on standard tables derived using data up to 1970 only - need to be treated with caution in view of the exceptional clustering of wet winters in recent years. This is especially true of Scotland where the 1989/90 October-March rainfall total of 1004 mm ranks as the 3rd highest (after 1982 and 1988) on record. More remarkably, eight of the twelve wettest winters in a series extending back to 1869 have occurred over the last decade - for this period rainfall in Scotland is 20% greater than the 1941-70 mean.

Winter rainfall totals were far less extreme in England and Wales but the transformation in hydrological conditions over the period early-December to mid-February served to effectively terminate the drought in western and central areas. October-March rainfall totals, relative to the average, are lowest in eastern districts where significant local variability in rainfall patterns has also been evident. Not all long-term rainfall deficiencies have been eliminated and in the 17-month time-frame a substantial shortfall may still be recognised in Northumbria with significant deficiencies in parts of Yorkshire and the Southern NRA region. These deficiencies constitute a continuing severe meteorological drought in a few localities along the eastern seaboard of Britain.

EVAPORATION AND SOIL MOISTURE DEFICITS

The exceptionally mild conditions in March were conducive to relatively high rates of evaporation and, as a result, soil moisture deficits - which were non-existent in all but a few localities throughout most of February - began to build in March. By month-end, SMDs were significantly above average in central, southern and eastern England; this limits the potential for further aquifer recharge during the remainder of the spring.

Computed actual evaporation losses in 1990 have been between 30% and 40% above average over large areas of Britain. Normally January-March evaporation totals are very modest, typically 10-15% of the annual total. Any tendency for this proportion to increase will have significant water resources implications. Fortunately, over the full 1989/90 winter half-year the very truncated period during which soils were at field capacity - at least in southern and eastern Britain - resulted in actual evaporation falling somewhat short of the potential figure in the late autumn and early winter, thereby partially counteracting the impact of the subsequently high evaporation losses.

RIVER FLOWS

The meagre rainfall and unusually high evaporation rate led to a brisk decline in river discharges through March. Spatial variations in runoff rates were also considerable with catchment geology exercising a powerful influence on river flow patterns.

Although recessions became established in Scotland during late February most rivers remained in spate throughout much of March; both the Tay and Clyde established new record runoff totals for the month. By contrast, rivers draining impervious catchments in southern Britain exhibited steep recessions resulting in daily flow rates substantially below the spring average by early April. The monthly runoff in March for rivers such as the Medway (Kent) and the Mole (Surrey) has a return period of the order of 5-10 years. Modest runoff totals also characterise a number of eastern rivers sustained principally from baseflow - the Derwent (Yorkshire) and Lud (Lincolnshire) are examples. For such catchments the accumulated runoff total over periods extending up to 18-24 months are among the lowest on record. Typically, the combined winter half-year runoff for 1988/89 and 1989/90 is the lowest, for two successive winters, since the early 1970s; for the Derwent, winter runoff since October 1988 is unprecedented. Away from the eastern lowlands, long-term runoff totals are healthy especially over the six-month winter period and continuing substantial baseflow support (a consequence of the heavy recharge in early 1990) is evident in many central and southern catchments.

The abundant reservoir replenishment in virtually all areas during January and February implies that the water supply outlook is considerably more encouraging than the end-of-March river flows might, in isolation, imply. Certainly most regions are considerably better placed to withstand a summer drought than at the corresponding time in 1989. However, a continuation of the current recessions into the late spring could present difficulties in some eastern rivers particularly if spray irrigation demands increase steeply.

GROUNDWATER

Infiltration during March was greatly below average throughout most major aquifers. Nonetheless, groundwater levels stood within the normal range in most index boreholes. The extreme regional contrasts apparent during late February have been moderated. Steep declines in water levels have been recorded in many western and central aquifer units whilst belated responses to earlier infiltration have occurred in deeper boreholes in eastern areas where the recoveries are being generated from a very low base. Some further modest recoveries may be anticipated where a lengthy lag exists between rainfall and water table response but little further infiltration may now be expected before the autumn.

Groundwater levels at the beginning of the 1989-90 winter were inordinately low, particularly in some eastern and southern aquifers. A belated seasonal upturn generally began over the latter

part of December. However, apart from some western areas, groundwater levels were still well below average at the end of the year. During January, further heavy rainfall led to continued infiltration and consequent rises in groundwater level in the south-west and south of England, but the effects appear to have been much less marked in the extreme south-east, the north Midlands and the north-east. During February a remarkable increase in infiltration led to substantial rises in groundwater level as shown in the well hydrographs in Figure 3, (locations are shown in Figure 4). By the beginning of March 1990, the winter recharge had generally exceeded the mean values (Table 4), while groundwater levels stood at, or above, the seasonal means. Exceptions appeared to be in the Chalk of Yorkshire and in Kent where the groundwater levels remain considerably below the seasonal mean.

The unusually low rainfall of March inevitably led to a sharp decrease in infiltration. By the last week of March, groundwater levels were still rising at Little Bucket Farm, at Washpit Farm and at Dalton Holme; this is probably, at least in part, due to the prolonged lag between rainfall and consequent groundwater level recovery caused by the unusually depressed levels of the 1989-90 winter. Elsewhere, the rise in groundwater levels had levelled off, as at the New Red Lion site, or were falling. Unless unusually heavy rainfall is experienced during April, these downturns signal the commencement of the summer recessions.

Table 4 shows the percentage of the mean annual recharge as measured at seven indicator well sites. At those sites where the downturn in groundwater levels has already taken place, the 1989-90 recharge is within the range 100% to 150%. Recharge so far for the Little Bucket borehole in Kent is over 90% (but see below) however, as a consequence of the historically exceptional levels registered early in the winter, groundwater levels remain significantly below the spring average. In East Anglia (Washpit Farm) and Yorkshire (Dalton Holme), the recharge to the end of the month was 34% and 44% respectively; it is thought that for these districts, the 1989-90 recharge is unlikely to exceed at best 60% to 70% of the annual mean.

The overall picture is reassuring, and groundwater resources over most of the country are above, in some areas well above, the seasonal average. Although groundwater levels in parts of East Anglia and Yorkshire are still well below the seasonal mean, the situation is much less serious than had been suggested by the lack of recharge through the autumn and early winter. The network of index boreholes provides a broadly representative picture of aquifer storage in England. In some areas, however, local variations in recharge rates through the winter have been important and in several localities, parts of north Kent especially, little or no recovery in groundwater levels has yet been reported and the water supply outlook is a matter of concern.

ERRATA

Certain of the rainfall figures for Scotland given in the February Hydrological Summary were erroneous. Correct values are given in Table 1 and the corresponding return period assessments are quoted below.

Rainfall in Scotland	Feb 1990	Jan 90 - Feb 90	Dec 89 - Feb 90
mm	268	486	586
% of 41-70 mean	258	202	148
Est. return period (yrs)	>200	>200	50 - 100

IH/ BGS

11/4/90

TABLE 1 1989/90 RAINFALL AS A PERCENTAGE OF THE 1941-70 AVERAGE

		Feb	Mar 1989	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 1990	Feb	Mar
England and	mm	78	84	85	22	63	41	60	40	95	62	135	116	132	20
Wales	%	120	142	147	33	103	56	66	48	114	64	150	135	203	34
NRA REGIONS															
North West	mm	123	113	92	33	102	34	118	28	136	75	103	178	171	39
	%	152	157	119	40	123	33	94	22	115	62	86	159	212	55
Northumbrian	mm	70	55	49	25	65	19	87	21	85	36	61	110	116	30
	%	106	106	89	39	107	25	86	26	113	38	81	138	176	46
Severn Trent	mm	65	69	87	23	53	37	40	37	83	51	126	113	109	19
	%	123	133	167	36	95	57	49	54	128	65	181	164	206	37
Yorkshire	mm	64	63	79	24	84	38	47	19	83	46	93	106	104	23
	%	100	119	141	39	145	54	52	27	120	52	126	138	162	43
Anglia	mm	34	48	74	14	62	44	37	29	43	37	95	52	77	16
	%	81	120	185	30	127	77	57	56	83	60	180	100	182	40
Thames	mm	60	65	77	14	46	38	40	32	66	37	134	86	110	12
	%	128	141	167	25	88	63	57	51	103	51	203	139	234	26
Southern	mm	62	75	81	11	50	32	28	29	80	44	137	110	132	5
	%	109	144	169	20	100	54	39	41	102	47	169	145	232	10
Wessex	mm	89	87	74	25	33	47	45	52	103	60	174	124	155	17
	%	151	150	137	37	61	76	55	66	126	62	193	147	263	33
South West	mm	135	115	92	18	38	36	63	99	141	97	192	181	215	25
	%	150	137	130	21	58	43	62	96	125	72	142	140	239	29
Welsh	mm	140	151	89	23	65	49	78	57	164	100	189	211	201	36
	%	146	174	103	25	79	52	66	46	127	70	130	155	209	41
Scotland	mm	239	188	71	58	84	60	181	89	173	62	100	218	268	183
	%	230	204	79	64	91	54	140	65	116	44	64	159	258	199
RIVER PURIFICATION BOARDS															
Highland	mm	355	233	60	68	90	66	222	118	252	83	107	290	364	382
	%	267	204	53	66	82	52	150	75	135	49	55	177	274	335
North-East	mm	113	83	54	59	57	25	84	57	87	30	61	100	145	96
	%	153	134	89	77	81	27	78	66	90	29	60	110	195	155
Tay	mm	197	173	45	42	58	31	140	84	135	53	87	230	249	160
	%	214	211	60	44	70	30	119	73	111	45	65	195	270	195
Forth	mm	158	151	44	36	64	27	142	69	112	38	78	210	221	121
	%	205	219	65	43	85	28	122	64	106	35	72	212	287	175
Tweed	mm	105	105	48	43	51	23	114	47	67	30	72	158	180	59
	%	152	181	79	57	75	27	100	51	76	29	80	170	260	102
Solway	mm	157	195	87	35	71	43	177	78	146	58	117	270	282	100
	%	169	214	99	38	79	39	136	52	101	40	77	193	303	110
Clyde	mm	262	229	82	46	90	64	249	120	240	74	107	320	343	221
	%	232	218	80	47	87	49	175	69	131	44	58	199	304	210

Note: January to December rainfalls are based upon MORECS figures supplied by the Meteorological Office.
Scottish RPB data for Mar 1990 are estimated from the isohyetal map of March rainfall in the MORECS bulletin.

TABLE 2 RAINFALL RETURN PERIOD ESTIMATES

		JAN - MAR 90	Est Return Period, years	OCT 89 - MAR 90	Est Return Period, years	NOV 88 - MAR 90	Est Return Period, years
England and	mm	268		559		1170	
Wales	% LTA	127	5-10	117	5-10	89	5-10
NRA REGIONS							
North West	mm	389		704		1600	
	% LTA	147	20-50	113	2-5	93	2-5
Northumbrian	mm	257		438		988	
	% LTA	130	5-10	99	2	79	20-50
Severn Trent	mm	242		502		1019	
	% LTA	139	10-20	129	10-20	93	2-5
Yorkshire	mm	232		455		999	
	% LTA	120	2-5	107	2-5	84	10-20
Anglia	mm	145		320		750	
	% LTA	108	2-5	106	2-5	87	5-10
Thames	mm	208		446		892	
	% LTA	134	5-10	124	5-10	89	5
Southern	mm	247		508		957	
	% LTA	134	5-10	116	2-5	83	10
Wessex	mm	296		633		1184	
	% LTA	147	10-20	135	10-20	94	2-5
South West	mm	421		851		1626	
	% LTA	139	10-20	124	5-10	92	2-5
Welsh	mm	447		900		1775	
	% LTA	140	10-20	122	2-5	91	2-5
Scotland	mm	669		1004		2393	
	% LTA	201	>200	129	20-50	116	20-50
RIVER PURIFICATION BOARDS							
Highland	mm	1040		1482		3041	
	% LTA	253	>200	154	>200	118	20-50
North-East	mm	344		522		1223	
	% LTA	151	20-50	99	2-5	79	50-100
Tay	mm	644		919		2023	
	% LTA	221	>200	138	20-50	105	2-5
Forth	mm	561		789		1771	
	% LTA	229	>200	139	50-100	105	2-5
Tweed	mm	405		574		1299	
	% LTA	184	>200	114	2-5	86	10
Solway	mm	632	>200	953		2157	
	% LTA	195		125	10-20	99	2-5
Clyde	mm	880	>200	1301		2981	
	% LTA	232		142	100-200	116	10-20

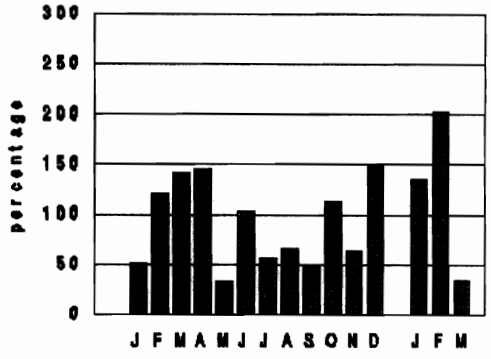
Return period assessments are based on tables provided by the Meteorological Office*. These assume a start in a specified month; return periods for a start in any month may be expected to be an order of magnitude less.

The tables reflect rainfall totals over the period 1911-70 only and the estimate assumes a sensibly stable climate.

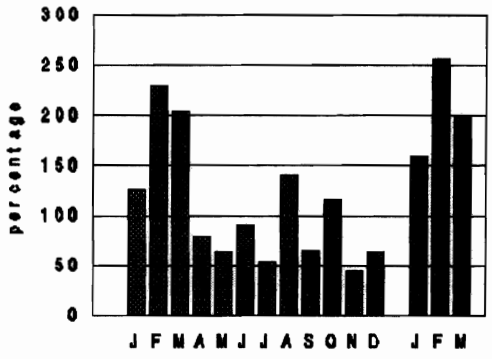
The March 1990 RPB values are estimated from the isopleth map within the March summary published in the Met. Office's MORECS bulletin.

* Tabony, R C, 1977, The Variability of long duration rainfall over Great Britain, Scientific Paper No. 37, Meteorological Office (HMSO).

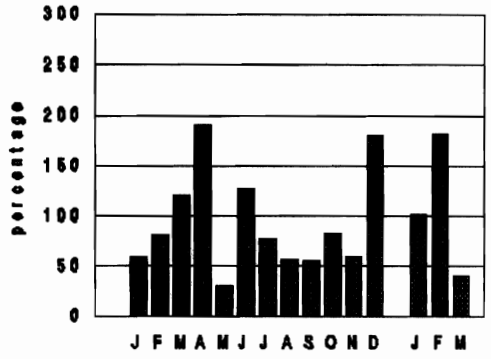
FIGURE 1. MONTHLY RAINFALL FOR 1989 – 1990 AS A PERCENTAGE OF THE 1941 – 1970 AVERAGE FOR ENGLAND & WALES, SCOTLAND, AND THE NRA REGIONS



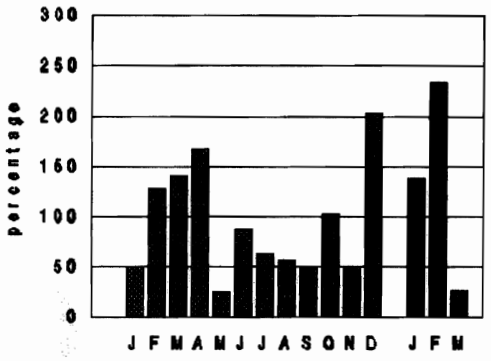
England and Wales



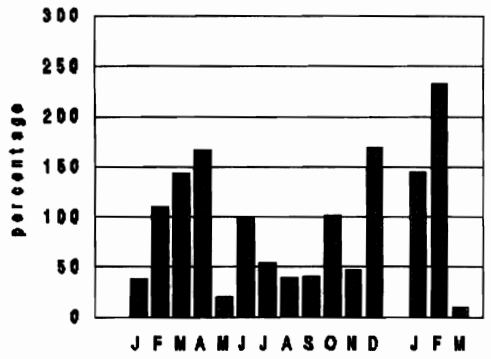
Scotland



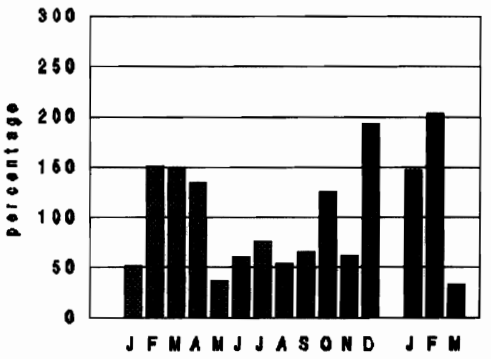
Anglian NRA Region



Thames NRA Region

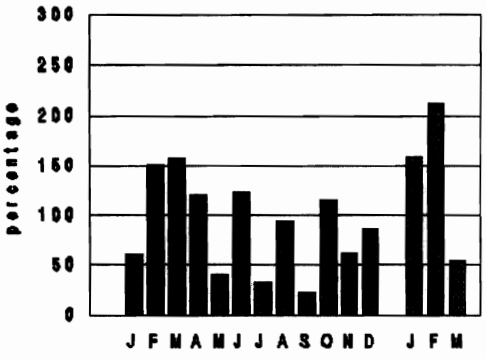


Southern NRA Region

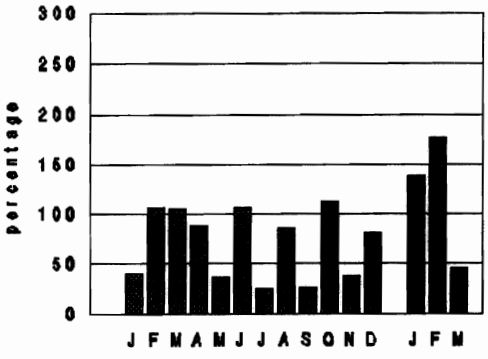


Wessex NRA Region

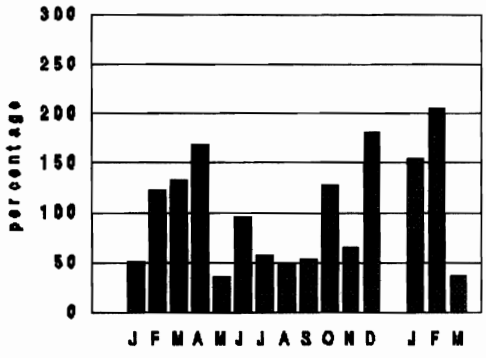
FIGURE 1 (continued)



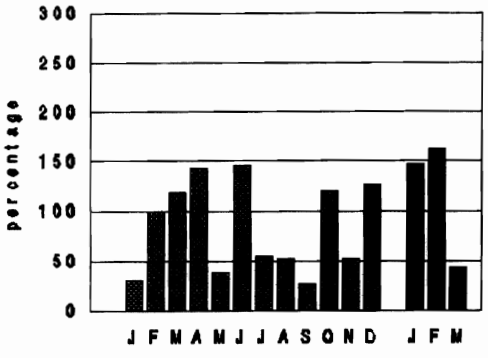
North West NRA Region



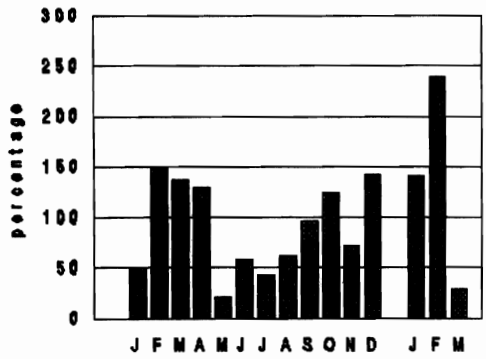
Northumbrian NRA Region



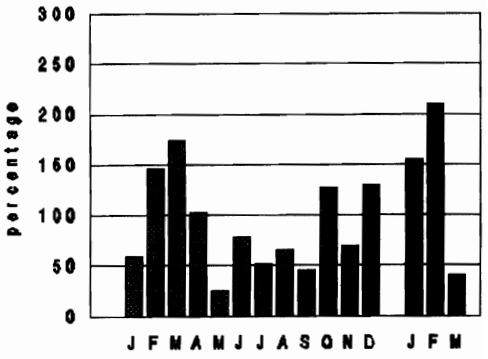
Severn-Trent NRA Region



Yorkshire NRA Region

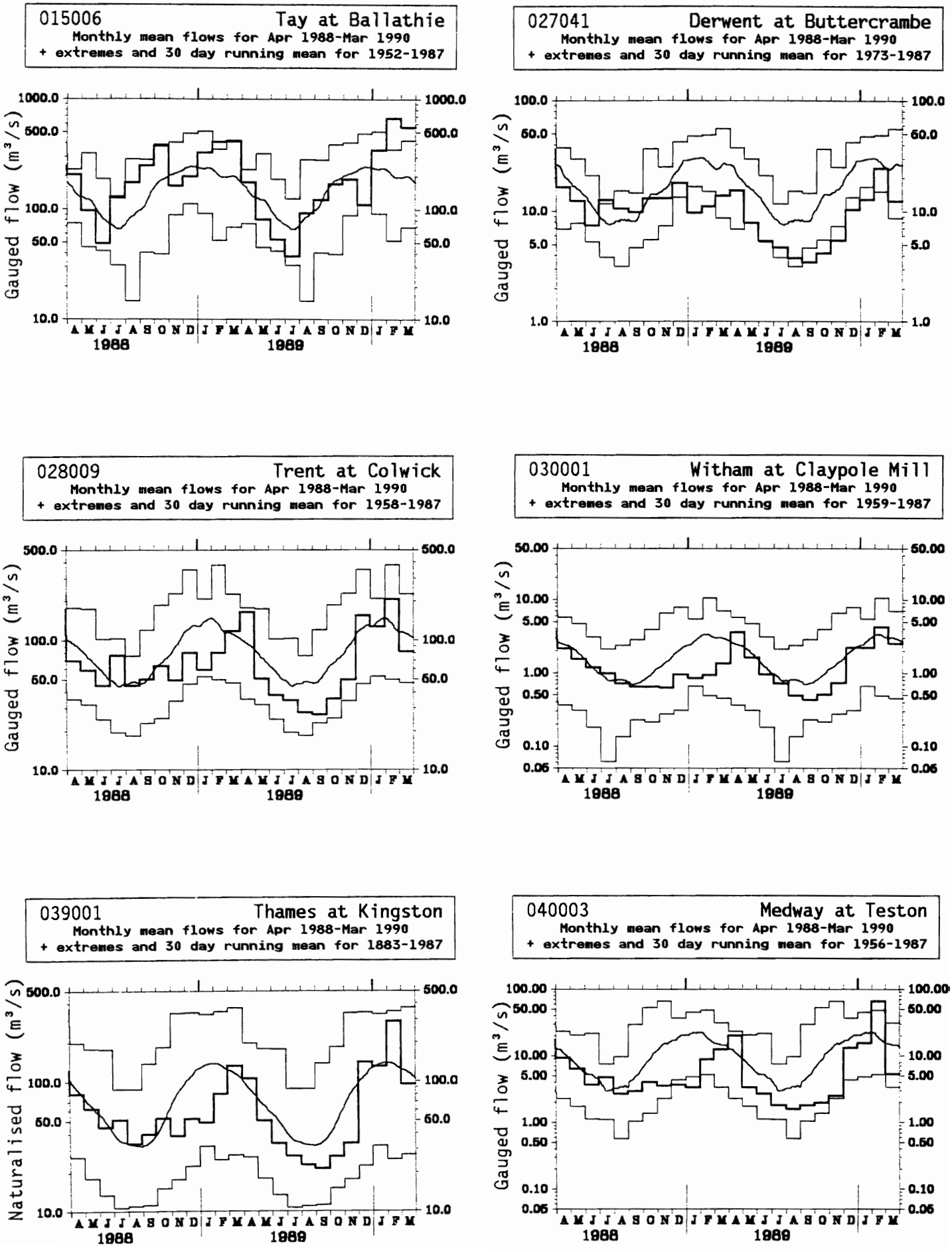


South West NRA Region

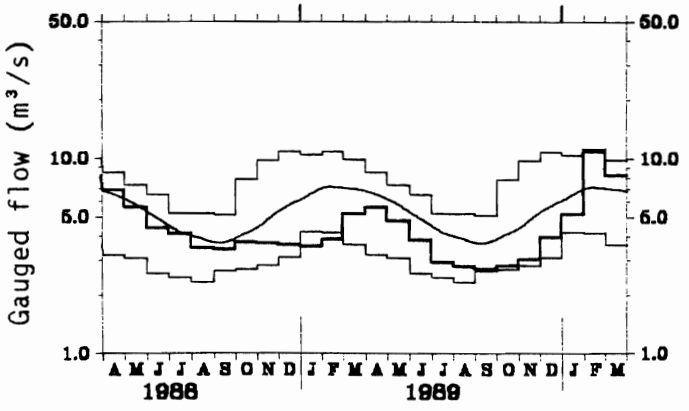


Welsh NRA Region

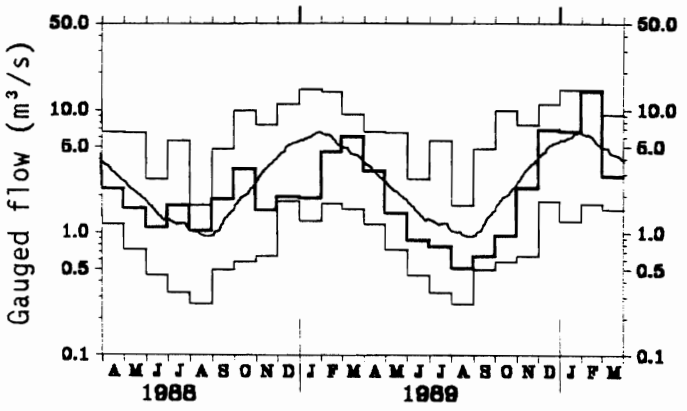
FIGURE 2 MONTHLY RIVER FLOW HYDROGRAPHS



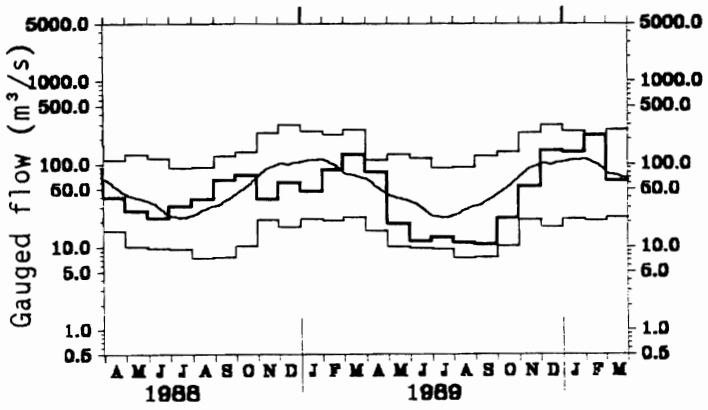
042010 Itchen at Highbridge+Allbrook
Monthly mean flows for Apr 1988-Mar 1990
+ extremes and 30 day running mean for 1958-1987



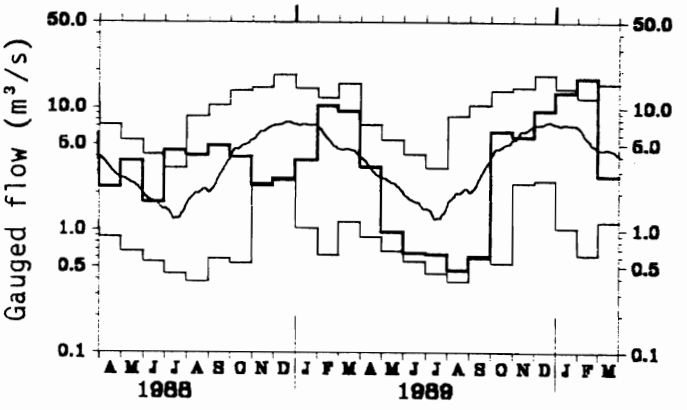
052005 Tone at Bishops Hull
Monthly mean flows for Apr 1988-Mar 1990
+ extremes and 30 day running mean for 1961-1987



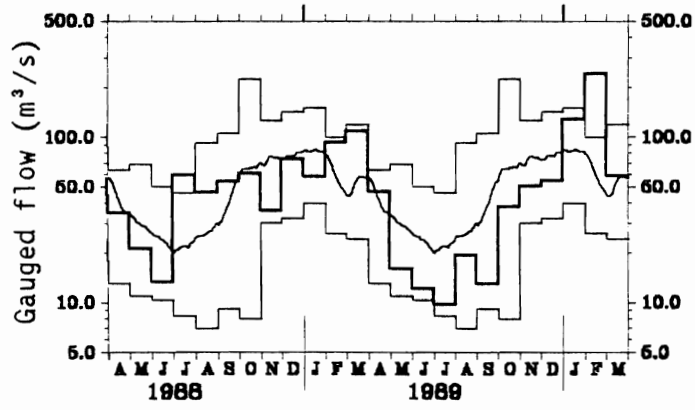
054001 Severn at Bewdley
Monthly mean flows for Apr 1988-Mar 1990
+ extremes and 30 day running mean for 1921-1987



057004 Cynon at Abercynon
Monthly mean flows for Apr 1988-Mar 1990
+ extremes and 30 day running mean for 1957-1987



076007 Eden at Sheepmount
Monthly mean flows for Apr 1988-Mar 1990
+ extremes and 30 day running mean for 1967-1987



084005 Clyde at Blairston
Monthly mean flows for Apr 1988-Mar 1990
+ extremes and 30 day running mean for 1958-1987

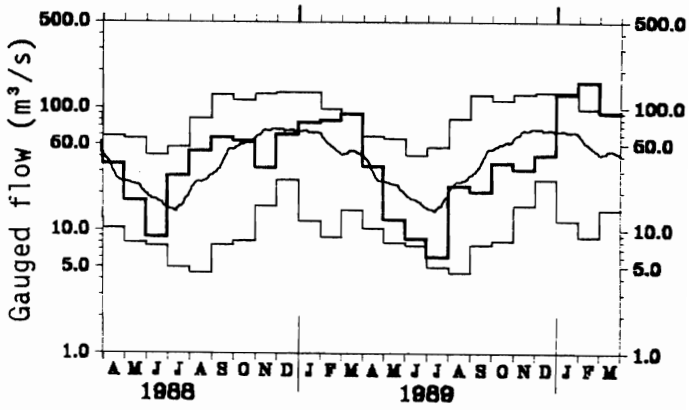


TABLE 3 RUNOFF AS MM. AND AS A PERCENTAGE OF THE PERIOD OF RECORD AVERAGE WITH SELECTED PERIODS RANKED IN THE RECORD

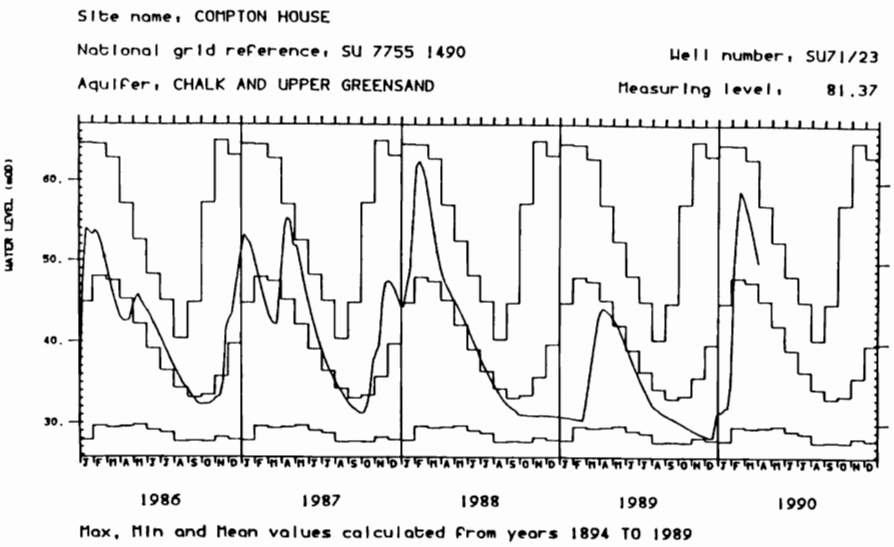
River/ Station name	May 1989	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 1990	Feb	Mar 1990	Mar	10/89 to 3/90		5/89 to 3/90		11/88 to 3/90	
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	rank	mm	rank	mm	rank	mm	rank
	%LT	%LT	%LT	%LT	%LT	%LT	%LT	%LT	%LT	%LT	%LT	/yrs	%LT	/yrs	%LT	/yrs	%LT	/yrs
Dee at	48	23	11	17	29	34	37	43	79	165	103	12	461	4	590	2	996	2
Park	72	60	38	50	67	41	48	47	85	236	115	/18	90	/17	82	/17	82	/17
Tay at	47	30	22	54	69	99	106	65	201	353	324	38	1148	38	1370	35	2323	37
Ballathie	66	66	55	104	97	89	88	45	144	331	275	/38	151	/38	131	/37	132	/37
Tweed at	25	16	11	27	29	32	35	60	175	245	105	22	651	29	760	18	1263	17
Boleside	57	56	40	68	55	44	40	64	177	345	137	/29	128	/29	109	/28	107	/28
Wharfe at	15	13	10	14	10	39	29	44	126	142	59	14	438	12	500	4	913	4
Flint Mill Weir	38	51	37	33	21	60	36	45	128	192	79	/35	90	/35	75	/34	80	/34
Derwent at	13	9	8	6	5	6	9	15	22	37	21	2	113	1	155	1	288	1
Buttercrambe	50	51	58	42	37	25	35	36	43	86	45	/17	51	/17	51	/16	53	/16
Trent at	18	13	12	10	9	13	17	56	45	66	29	8	226	14	288	10	480	8
Colwick	70	67	74	59	52	54	55	127	88	152	71	/32	97	/32	88	/31	84	/31
Dove at	24	17	17	12	10	16	29	59	68	78	41	8	290	10	369	4	661	7
Marston on Dove	66	63	73	50	40	47	60	91	98	142	76	/29	90	/29	81	/27	83	/27
Lud at	15	12	10	9	8	9	8	12	12	21	21	4	83	3	138	4	229	2
Louth	52	56	59	64	69	72	53	59	38	57	55	/22	56	/22	60	/21	57	/21
Witham at	14	8	6	4	4	5	6	20	20	34	23	14	107	14	144	13	216	6
Claypole Mill	87	80	84	56	63	57	49	105	76	126	86	/31	91	/31	88	/31	73	/30
Colne at	6	4	5	3	5	3	5	14	11	35	9	6	78	9	101	8	189	8
Lexden	67	73	119	73	115	34	39	82	46	193	48	/31	80	/31	80	/30	82	/30
Mimram at	11	9	9	7	6	6	6	10	11	15	15	25	62	18	102	11	163	9
Panshanger Park	88	82	92	77	73	71	68	98	94	127	112	/38	97	/37	90	/37	89	/36
Thames at	13	9	7	6	6	7	9	38	33	70	25	42	184	70	225	58	345	35
Kingston (natr.)	74	71	74	68	67	52	41	126	88	212	80	/108	111	/107	101	/107	86	/106
Coln at	30	18	15	13	10	10	15	39	56	100	71	23	291	22	376	16	534	6
Bibury	89	66	70	76	69	61	60	98	107	184	132	/27	121	/27	106	/26	86	/26
Mole at	16	19	12	11	11	15	16	81	64	153	21	2	350	11	419	9	666	2
Kinnersley Manor	57	106	93	71	61	38	36	123	85	317	42	/16	106	/15	100	/15	88	/13
Medway at	7	6	4	3	4	4	5	28	33	125	11	3	207	18	230	12	337	3
Teston	47	60	62	41	40	21	16	69	66	336	35	/33	100	/29	91	/26	74	/25
Itchen at	36	27	22	21	20	21	22	29	39	74	61	27	246	16	371	8	555	2
Highbridge+Allbrook	84	77	71	73	75	68	63	68	79	150	117	/32	96	/32	89	/31	80	/31
Stour at	15	11	8	6	6	8	15	74	66	154	46	8	365	15	417	14	604	6
Throop Mill	62	68	70	55	49	35	46	134	106	271	89	/18	127	/17	115	/17	91	/16
Tone at	19	11	10	7	9	13	29	91	88	170	38	9	429	24	484	18	728	9
Bishops Hull	67	61	63	55	57	47	68	136	108	233	66	/30	122	/29	110	/29	91	/28
Brue at	15	7	6	5	5	6	16	98	77	125	26	3	348	17	386	11	634	4
Lovington	62	45	35	31	32	20	37	144	108	213	51	/26	107	/25	93	/25	86	/25
Severn at	12	7	8	7	6	14	32	81	84	123	39	34	383	51	423	37	687	21
Bewdley	50	39	56	40	27	41	59	130	118	215	85	/69	118	/69	101	/69	92	/68
Teme at	12	5	3	2	2	4	17	101	93	118	34	8	365	19	392	18	570	4
Knightsford Bridge	55	34	35	22	23	19	50	190	138	221	66	/20	130	/20	115	/20	90	/19
Yscir at	18	10	11	8	11	90	125	209	225	228	65	6	942	17	1000	11	1581	6
Pontaryscir	40	32	49	25	22	97	101	140	152	225	59	/18	125	/17	108	/17	97	/16
Cynon at	24	16	16	12	15	160	139	238	331	393	70	11	1330	32	1413	26	2174	18
Abercynon	39	38	46	23	21	132	90	126	175	308	60	/32	145	/32	119	/30	107	/30
Dee at	23	34	23	34	36	226	169	224	388	344	90	4	1441	17	1591	7	2672	5
New Inn	32	57	33	35	25	113	68	90	161	217	51	/21	112	/21	92	/20	92	/20
Lune at	20	14	12	44	13	121	81	84	266	298	77	14	947	24	1037	13	1813	13
Caton	39	34	23	61	14	99	60	54	182	332	80	/28	125	/26	97	/26	103	/24
Eden at	19	14	11	24	15	44	45	52	149	253	68	13	636	18	717	13	1190	11
Sheepmount	56	53	39	75	33	57	53	58	147	392	104	/20	130	/19	111	/18	109	/17
Clyde at	19	13	9	36	31	55	47	64	200	227	143	32	737	31	845	24	1406	25
Blairston	52	50	36	91	54	68	48	62	196	319	202	/32	138	/32	117	/31	115	/31

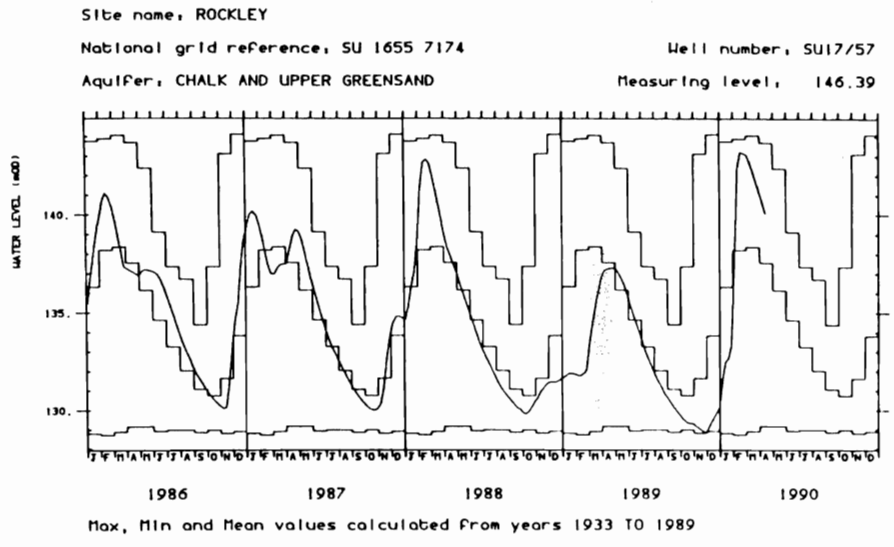
Notes (i) Values based on gauged flow data unless flagged (natr.), when naturalised data have been used.

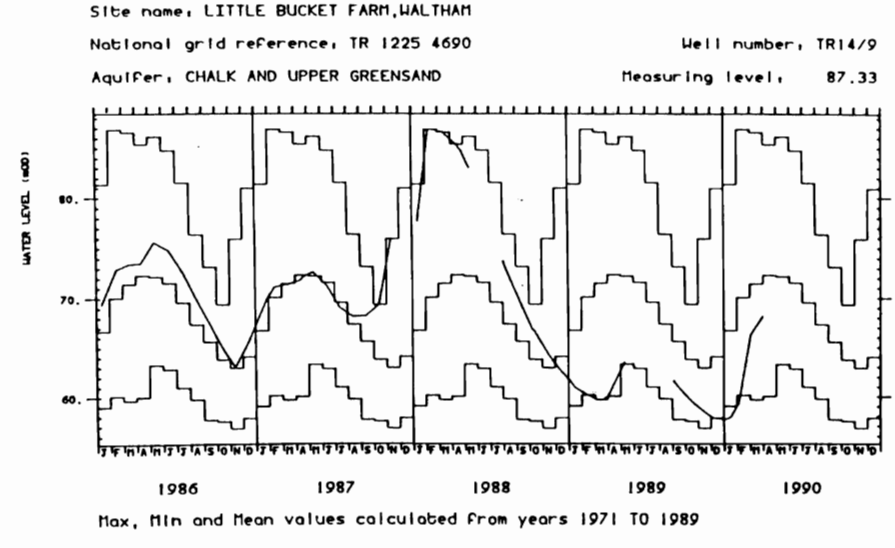
(ii) Values are ranked so that lowest runoff as rank 1;

(iii) %LT means percentage of long term average from the start of the record to 1988. For the long periods (at the right of this table), the end date for the long term is 1990.

FIGURE 3 GROUNDWATER HYDROGRAPHS



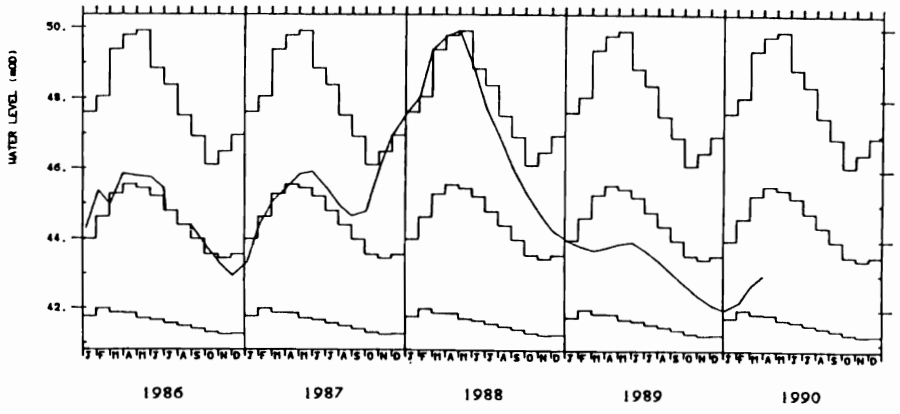




Site name: WASHPIT FARM

National grid reference: TF 8138 1960 Well number: TF81/2

Aquifer: CHALK AND UPPER GREENSAND Measuring level: 80.20

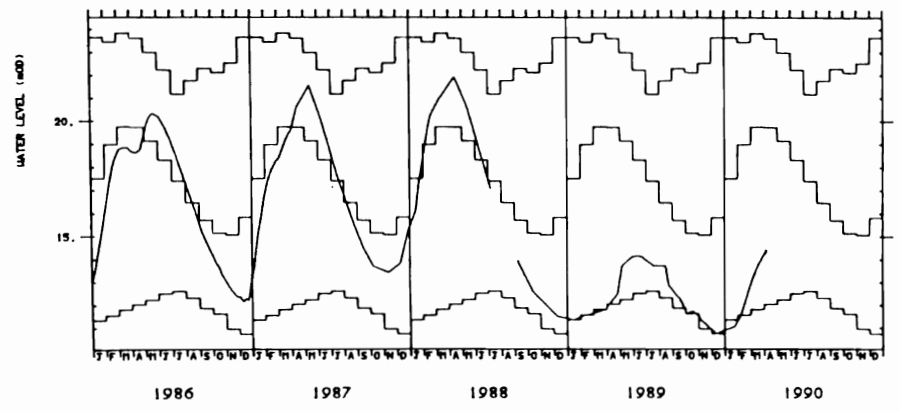


Max, Min and Mean values calculated from years 1950 TO 1989

Site name: DALTON HOLME

National grid reference: SE 9651 4530 Well number: SE94/5

Aquifer: CHALK AND UPPER GREENSAND Measuring level: 33.50



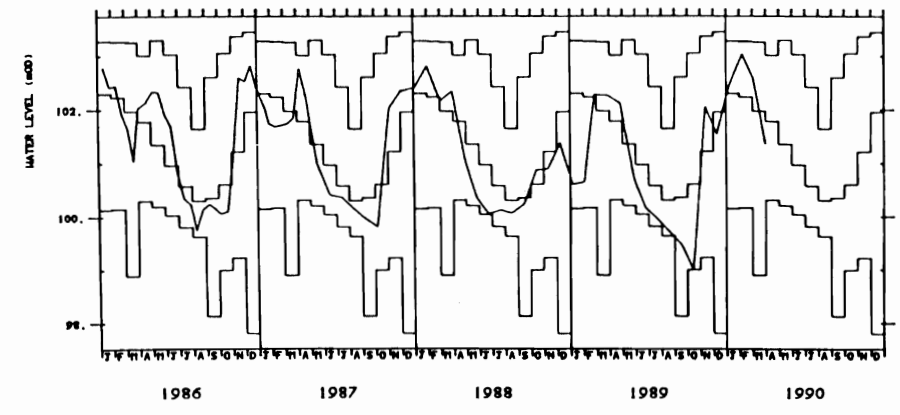
Max, Min and Mean values calculated from years 1889 TO 1989

A break in the data line indicates a recording interval of greater than 8 weeks

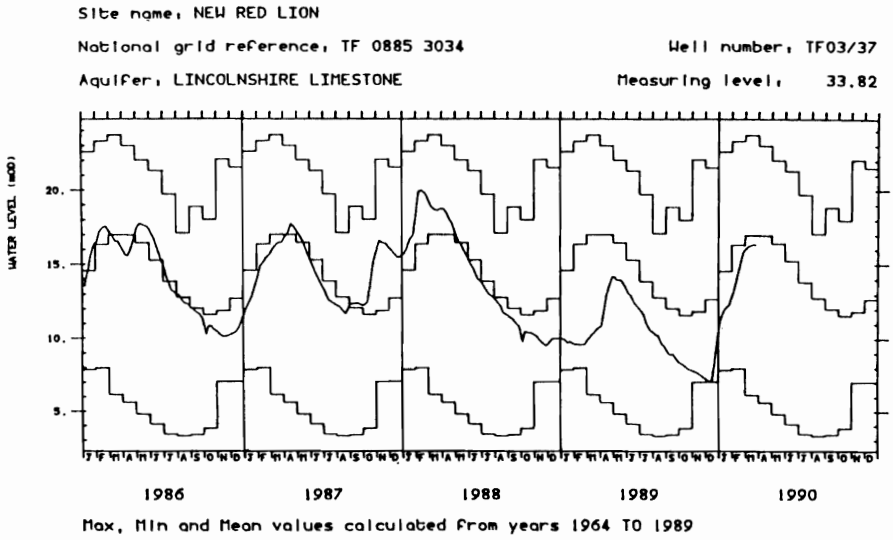
Site name: AMPNEY CRUCIS

National grid reference: SP 0595 0190 Well number: SP00/62

Aquifer: MIDDLE JURASSIC Measuring level: 109.70



Max, Min and Mean values calculated from years 1958 TO 1989



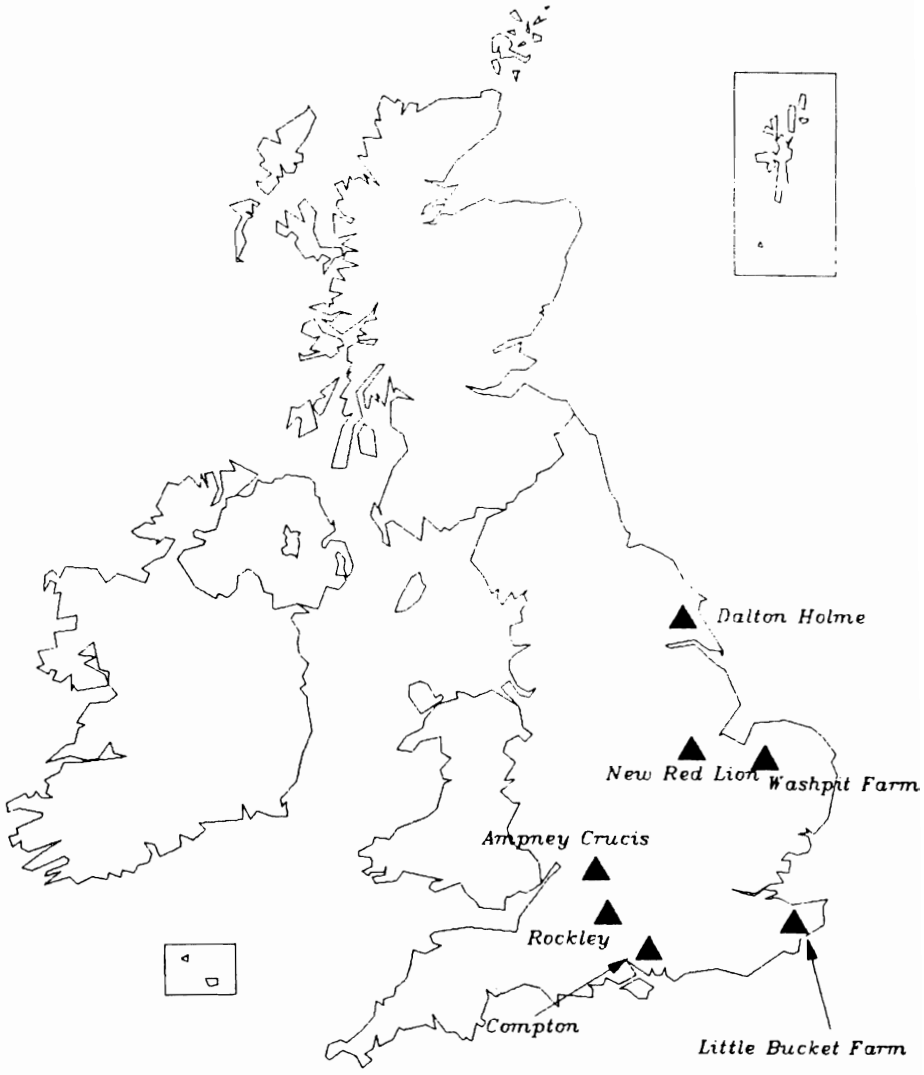


FIGURE 4 LOCATION MAP OF GROUNDWATER INDEX WELLS

TABLE 4 RISE IN GROUNDWATER LEVELS AT CERTAIN INDICATOR WELL SITES FOR THE WINTER OF 1989-90, AND THE CALCULATED PERCENTAGE OF MEAN ANNUAL RECHARGE SO FAR RECEIVED.

Site	Latest date of measurement	Approximate rise in groundwater levels (metres)	Mean annual range (metres)	Percentage of mean annual recharge
Compton House	02 04 90	31.8	21.8	146
Rockley	04 04 90	14.6	10.9	134
Little Bucket Farm	02 04 90	10.4*	11.4	91
Washpit Farm	04 04 90	1.0*	2.9	34
Dalton Holme	09 04 90	3.7*	7.1	52
Ampney Crucis	02 04 90	4 1	3.1	132
New Red Lion	27 03 90	9.3	9.2	101

For sites marked by *, groundwater levels were still rising at the latest date of measurement.